



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,536	02/02/2005	Eduard Michel	2002DE123	7551

25255 7590 08/09/2007
CLARIANT CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
4000 MONROE ROAD
CHARLOTTE, NC 28205

EXAMINER

BURNEY, RACHEL L

ART UNIT	PAPER NUMBER
----------	--------------

1753

MAIL DATE	DELIVERY MODE
-----------	---------------

08/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,536	Applicant(s) MICHEL ET AL.	
	Examiner Rachel L. Burney	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/23/2007, 05/31/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 02/23/2007 and 05/31/2005 were filed after the mailing date of the application on 02/02/2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

2. The reference US Patent 5051676 is not considered relevant as it is drawn to a robot program checking method.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claim 1 is objected to because of the following informalities: as amended, claim 1 recites "material in an and in..." in line 4 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7 and 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 7 recites the limitation "H" in place of "X" of the structure in claim 1 in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 8 recites the limitation "organic cations" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. The claim has been interpreted to mean "organic anions."

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

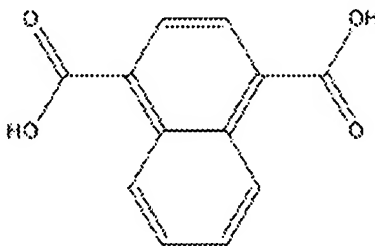
A person shall be entitled to a patent unless –

Art Unit: 1753

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 6-8, 10, 11, 15-17, and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5502118, Macholdt et al.

With respect to claims 1,2, 6, and 22, Macholdt discloses a process for controlling the charge of an electrophotographic toner (column 1, lines 5-7) wherein the charge control agent is a polymer salt comprising a cationic and an anionic portion. The cationic portion is metal cations and the anionic portion is a dicarboxylic acid (column 5, lines 19-42). The metal cations are divalent and trivalent metal cations (column 10, lines 28-30). The anionic dicarboxylic acid is 1,4-naphthalenedicarboxylic acid (column 6, lines 14-20) which is an organic anion having the structure:

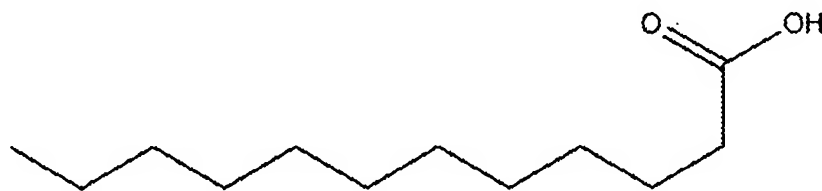


While Macholdt doesn't specify the structure is a double hydroxide salt, the formula for the salts of Macholdt are substantially similar to those of the instant application, and therefore the compositions would have substantially similar characteristics, such as being a double hydroxide salt having about 1.8 to about 2.2 times as many hydroxyl groups as metal cations.

Art Unit: 1753

With respect to claim 3, Macholdt discloses the process of claim 1 as discussed above wherein the metal cations are selected from Na^+ and K^+ (column 10, lines 28-29).

With respect to claims 7 and 8, Macholdt discloses the process of claim 1 as discussed above wherein a suitable monofunctional carboxylic acid includes lauric acid (column 7, lines 26-29), which is a C_{12} fatty acid having the structure:



With respect to claim 10, Macholdt discloses the process of claim 1 as discussed above wherein the charge control agent is a compound of a fluorinated phosphonium ion (column 9, lines 39-40).

With respect to claim 11, Macholdt discloses the process of claim 1 as discussed above wherein the charge control agent is present in an amount from 0.01%-50% by weight of the toner (column 12, lines 45-50).

With respect to claim 15, Macholdt discloses the process of claim 1 as discussed above wherein the metal cations are selected from Mg^{2+} , Ca^{2+} , Zn^{2+} and Fe^{2+} (column 10, lines 28-30).

With respect to claim 16, Macholdt discloses the process of claim 1 as discussed above wherein the metal cations are selected from Al^{3+} , Fe^{3+} and Cr^{3+} (column 10, lines 28-30).

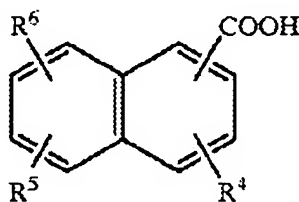
Art Unit: 1753

With respect to claim 17, Macholdt discloses the process of claim 8 as discussed above wherein the carboxylic acid is a stearic acid (column 7, lines 26-28).

With respect to claim 23, Macholdt discloses the process of claim 1 as discussed above wherein the electrophotographic toner comprises a binder and a charge control agent is incorporated into the binder (column 12, lines 45-50).

With respect to claim 24, Macholdt discloses the process of claim 1 as discussed above wherein the charge control agent is present in an aqueous solution (column 11, lines 27-30).

11. Claims 12 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6207335, Michel et al. Michel discloses an electrophotographic toner comprising 0.01 to 50% by weight of a binder (column 15, lines 12-15), 0.01-50% by weight of the charge control agent, hydroxide salt as shown in claim 1, (column 14, lines 35-40), and 1-10% by weight of a colorant (column 15, lines 22-24) wherein the charge control agent is a hydroxide salt comprising: a divalent and trivalent metal cation (column 7, lines 37-38) and an organic anion having the formula:



wherein R^4 , R^5 , and R^6 are hydrogen or a C_6 - C_{10} -aryl group, where 1 to 3 of the aryl groups is substituted with a carboxyl or hydroxyl group (column 4, line 47 – column 6, line 4).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5502118, Macholdt et al. as applied to claim 1 above, and further in view of US Patent 5360859, Ogawa et al. Macholdt discloses the process of claim 1 as discussed above, wherein the salt may contain Mg^{2+} and Al^{3+} (column 8, lines 42-43), but does not give a specific example of a hydroxide salt with both cations. Ogawa

Art Unit: 1753

teaches complex hydroxide salts for stabilizing resins (column 1, lines 60-63) wherein a hydrotalcite having Mg:Al in a ratio from 2-2.5 has the best heat stabilizing action (column 2, lines 15-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a hydrotalcite having Mg:Al in a ratio from 2-2.5, as taught by Ogawa, in the process of Michel to optimize the heat stability of the polymer.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5502118, Macholdt et al. as applied to claim 1 above, and further in view of US PGPub 20030215731, Saiki et al. Macholdt discloses the process of claim 1 as discussed above, but fails to teach the salt in the form of a hydrotalcite. Saiki teaches that commonly used charge control agents include hydrotalcite compounds (PP 0434). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the salt of Macholdt to form any commonly used charge control agents, including hydrotalcite compounds, as taught by Saiki.

16. Claims 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5502118, Macholdt et al. as applied to claim 24 above, and further in view of US Patent 6207335, Michel et al. Macholdt discloses the process of claim 24 as discussed above, but fails to teach a particle size of the charge control agent. Michel discloses an electrophotographic toner with charge control agents (column 4, lines 47-49) wherein the charge control agent has a particle size of less than 0.5 μm (500nm) to achieve homogeneous distribution (column 13, lines 53-59). It would have been

Art Unit: 1753

obvious to one of ordinary skill in the art at the time of the invention to form the charge control agents of Macholdt to have a particle size of less than 500nm to achieve homogeneous distribution, as taught by Michel.

17. Claims 13, 14, 19, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5728366, Martin et al.

With respect to claims 13 and 19, Martin discloses a magnesium-aluminum

hydrotalcite (column 4, lines 66-67) wherein a carbonate is used to make the hydrotalcite (column 4, lines 43-45). The hydrotalcite has a Mg:Al ratio from about 2:1 to about 3:1 (column 4, line 66 – column 5, line 1). The hydrotalcite is made up from the formula $A_{1-x}B_x(OH)_2C_z \cdot mH_2O$ where A represents a divalent metal cation, B represents a trivalent metal cation, C represents a polyvalent anion, x is 0.09-0.67, $z=x/n$, where n is the charge of the anion and m is 0.5-2 (column 3, line 64 – column 4, line 5). A can be Mg^{2+} , B can be Al^{3+} (column 4, lines 8-10) and C can be an alkyl group with 1-30 carbons, wherein any or all of the carbons can be substituted with sebacates and succinates, which can also be substituted with sulfo and halogens, such as fluorine, (column 6, line 57 – column 7, line 18). The C group is present in an amount of x/n wherein x is the amount of B and n is the charge on the anion. While Martin does not give a desired range for C, it is reasonable to conclude that C would be present in less than 50% by weight of the total weight of the hydrotalcite. Martin does not give a ratio of the sulfosuccinic acid in the total weight of the hydrotalcite, however since the

Art Unit: 1753

composition of Martin is the same of that as the instant application and the ranges of the instant application are extremely broad (2%-83% and .5%-70%), it would be reasonable to conclude that the inclusion of sulfosuccinic acid in the composition of Martin would fall within the ranges given by the instant application.

With respect to claims 14 and 20, Martin discloses the composition of claim 13 as discussed above, wherein the hydrotalcite is identified by the formula $A_6B_2(OH)_{16}C_z \cdot 4H_2O$, wherein A can be Mg^{2+} and B can be Al^{3+} (column 4, lines 7-10) and C is the same as the Z group of the instant application, as discussed above.

With respect to claim 21, Martin discloses the composition of claim 14 as discussed above, wherein x is between 0.9 and 0.67. It would have been obvious to one of ordinary skill in the art at the time of the invention to use any number between 0.9 and 0.67. Using 0.33 for x and multiplying the entire formula by 6, the formula becomes $A_4B_2(OH)_{12}C_z \cdot mH_2O$, using the same substitutions as discussed above, the formula $Mg_4Al_2(OH)_{12}(CO_3)_bZ_a \cdot nH_2O$ can easily be derived.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel L. Burney whose telephone number is 571-272-9802. The examiner can normally be reached on Mon-Thurs: 7:30-6:00 PM, EST.

Art Unit: 1753

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RLB
RLB

Alexa Neckel
ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER